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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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|---|---|--|---|-------------------------------------|----------------------|----|--------------------------|----------|-----|-------------------------------------|--|----|-------------------------------------|----------------------------|---|--------------------------|--|----|--------------------------|-------------------------|-----|--------------------------|--|------|--------------------------|---|
| Applicant's or agent's file reference PC/GW/P12969PC | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | | | | | | | | | | | | | | | | | | | | | | | | | |
| International application No. PCT/GB 03/03007 | International filing date (day/month/year) 10.07.2003 | Priority date (day/month/year) 10.07.2002 | | | | | | | | | | | | | | | | | | | | | | | | |
| International Patent Classification (IPC) or both national classification and IPC A61L33/00 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applicant UNIVERSITY COURT OF THE UNIVERSITY OF DUNDEE et al | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. This report contains indications relating to the following items:</p> <table border="0"><tr><td>I</td><td><input checked="" type="checkbox"/></td><td>Basis of the opinion</td></tr><tr><td>II</td><td><input type="checkbox"/></td><td>Priority</td></tr><tr><td>III</td><td><input checked="" type="checkbox"/></td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td>IV</td><td><input checked="" type="checkbox"/></td><td>Lack of unity of invention</td></tr><tr><td>V</td><td><input type="checkbox"/></td><td>Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td>VI</td><td><input type="checkbox"/></td><td>Certain documents cited</td></tr><tr><td>VII</td><td><input type="checkbox"/></td><td>Certain defects in the international application</td></tr><tr><td>VIII</td><td><input type="checkbox"/></td><td>Certain observations on the international application</td></tr></table> | | | I | <input checked="" type="checkbox"/> | Basis of the opinion | II | <input type="checkbox"/> | Priority | III | <input checked="" type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | IV | <input checked="" type="checkbox"/> | Lack of unity of invention | V | <input type="checkbox"/> | Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | VI | <input type="checkbox"/> | Certain documents cited | VII | <input type="checkbox"/> | Certain defects in the international application | VIII | <input type="checkbox"/> | Certain observations on the international application |
| I | <input checked="" type="checkbox"/> | Basis of the opinion | | | | | | | | | | | | | | | | | | | | | | | | |
| II | <input type="checkbox"/> | Priority | | | | | | | | | | | | | | | | | | | | | | | | |
| III | <input checked="" type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | | | | | | | | | | | | | | | | | | | | | | | | |
| IV | <input checked="" type="checkbox"/> | Lack of unity of invention | | | | | | | | | | | | | | | | | | | | | | | | |
| V | <input type="checkbox"/> | Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | | | | | | | |
| VI | <input type="checkbox"/> | Certain documents cited | | | | | | | | | | | | | | | | | | | | | | | | |
| VII | <input type="checkbox"/> | Certain defects in the international application | | | | | | | | | | | | | | | | | | | | | | | | |
| VIII | <input type="checkbox"/> | Certain observations on the international application | | | | | | | | | | | | | | | | | | | | | | | | |
| Date of submission of the demand 28.01.2004 | Date of completion of this report 13.10.2004 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Maremonti, M Telephone No. +49 89 2399-8440  | | | | | | | | | | | | | | | | | | | | | | | | | |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No.PCT/GB 03/03007

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-18 as originally filed

Claims, Numbers

1-31 as originally filed

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing: _____

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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EXAMINATION REPORT**

International application No. **PCT/GB 03/03007**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☒ the entire international application,

☐ claims Nos.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☒ the claims, or said claims Nos. 7-27 are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-6, 28-31

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

☐ restricted the claims.

☐ paid additional fees.

☐ paid additional fees under protest.

☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☐ complied with.

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☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☐ all parts.

☐ the parts relating to claims Nos. .

EXAMINATION REPORT - SEPARATE SHEET**Re Item III****Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1.1 As already mentioned at the search stage, the formulation of independent claim 1 includes an extremely large number of possible "modified surfaces". In fact, the feature "wherein the adhesion or attachment of particles...when the modified surface is in use" merely represents a *desideratum*, i.e. a result to be achieved, whereby the specific features which are necessary to achieve such result are not mentioned. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, if any, for only a very small proportion of the modified surfaces claimed. Specifically, the only surface modification disclosed in the application in order to minimise or prevent the adhesion of particles is a coating of the surface with a modified diamond like carbon (DLC), Ag-PTFE-surfactant or Ni-Cu-P-PTFE. No indication of other possible surface modifications are disclosed in the application. The same reasoning applies to dependent claims 2-6, as well. For the same reason, independent claims 28 and 30 also include an extremely large number of possible methods. In fact, these claims merely comprise a *desideratum*, i.e. a result to be achieved (minimisation or prevention of the adhesion or attachment of particles to a surface), whereby the specific method features which are necessary to achieve such result are not mentioned.

The formulation of independent claims 29 and 31 includes an extremely large number of possible devices and device uses, respectively. It is completely obscure which kind of devices and uses should be intended since no specific features of such devices and uses are mentioned either in the claims or in the description. Therefore, all claims 1-6 and 28-31 lack support and the application lacks disclosure. The requirements of Articles 5 and 6 PCT are not met.

1.2 The attention of the applicants is drawn to the fact that since no search report was established with respect to claims 1-6 and 28-31 for the reasons given above, no opinion on these claims with regard to novelty, inventive step and industrial applicability can be established (Article 34(4)(a)(i) PCT in combination with Rule 66.1(e) PCT).

2. As far as remaining claims 7-27 are concerned, the following is noted. Claims 7-27 relate to a surface that is modified by adding a coating made of a modified diamond like carbon (DLC), Ag-PTFE-surfactant or Ni-Cu-P-PTFE. According to

EXAMINATION REPORT - SEPARATE SHEET

the description, such a coating should minimise or prevent the adhesion or attachment of particles to the surface by acting on the surface free energy of the uncoated surface. Particularly, the coating should be "adjusted" in order to obtain a free energy which equals a specific value indicated in the description as $\gamma_{S,Min}^{LW}$. Apparently, such a value depends on the free energies of the particles and of the environment where the surface is in use (see p. 10, l. 16-p. 11, l. 8). However, no indication is provided in the application about the procedure to be followed in order to obtain such free energy values. It is completely obscure how a person skilled in the art could calculate the mentioned $\gamma_{S,Min}^{LW}$ value for given particles in a given environment. It is also obscure how then a person skilled in the art could obtain this specific free energy by providing a particular surface coating. It is undisputed that the coating affects the surface free energy but the application does not provide any information about the precise relationship between coating type and surface free energy. The only available information is reported in figure 1, which, however, merely refers to one coating, namely DLC.

In other words, by appraising the information contained in the entire specification in the light of the skilled person's common knowledge at the date of the application, it results that the present application does not contain sufficient information to allow a person skilled in the art, using his common general knowledge, to carry out the alleged invention **without undue burden within substantially the whole scope** of claims 7-27. The requirements of Article 5 PCT are not met.

Due to the objection under Article 5 PCT mentioned above, no opinion with regard to novelty, inventive step and industrial applicability can be established with respect to claims 7-27 (Article 34(4)(a)(ii) PCT).

Re Item IV**Lack of unity of invention**

1. The attention of the applicants is further drawn to the fact that, as already mentioned at the search stage, the present application does not comply with the requirements of unity of invention (Rule 13 PCT) and it relates to three inventions, namely:
 - 1) Claims 7 (partially), 8-12, 24-27 (partially)
 - 2) Claims 7 (partially), 13-19, 24-27 (partially)
 - 3) Claims 7 (partially), 20-23, 24-27 (partially)

EXAMINATION REPORT - SEPARATE SHEET

In fact, the common concept linking the above mentioned inventions is the modification of a surface by means of a coating in order to prevent or minimise the attachment of particles. Surfaces modified with a coating of modified diamond like carbon (DLC) are known at least from all documents GB-A-2287473, WO-A-0075394, WO-A-0047402, DE-U-20020649, US-A-5945153, US-A-5725573 and WO-A-0143790 (cf. passages cited in the search report). Hence, since the mentioned common concept is not novel then the above mentioned inventions (1) to (3) do not have any "special technical features" in common, in the sense of Rule 13.2 PCT. Therefore, these inventions are not so linked as to form a single general inventive concept (Rule 13.1 PCT).

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